

plurality of reflector antennas pointed toward a common direction each comprising a reflector having a rim defining a polygonal geometric shape and each comprising a feed array disposed above the individual reflector;

each reflector antenna being disposed adjacent to at least one other reflector antenna in the plurality of reflector antennas to form a phased array antenna using the plurality of reflector antennas as phased array antenna elements so that the signal energy from the plurality of reflector antennas combines to form a beam.

(‘835 patent claim 1 in modified form)

By 27. A phased reflector array according to claim 27, wherein the plurality of reflectors comprises four or more individual reflectors arranged substantially on a periodic reflector lattice.

(‘835 patent claim 2)

28. A phased reflector array according to claim 28, wherein at least one of the feed arrays comprises four or more individual feeds arranged substantially on a periodic feed lattice.

(‘835 patent claim 3)

29. A phased reflector array antenna according to claim 29, wherein the periodic feed lattice is a periodic hexagonal feed lattice.

(‘835 patent claim 4)

30  
31. A phased reflector array antenna according to claim 28, wherein each feed array is disposed at a corresponding individual reflector focal point.

('835 patent claim 6)

31  
32. A phased reflector array antenna according to claim 28, wherein the periodic reflector lattice is a periodic hexagonal reflector lattice.

('835 patent claim 7)

32  
33. A phased reflector array according to claim 27, wherein the plurality of reflector antennas comprises four or more individual reflectors arranged on an aperiodic lattice.

34  
('835 patent claim 8)

33  
34. A phased reflector array antenna according to claim 27, further comprising:

phase and amplitude control means coupled to each individual reflector for steering the individual reflectors.

34  
('835 patent claim 9)

35  
35. A phased reflector array antenna according to claim 27, further comprising switching means coupled to the feed arrays for selectively activating and deactivating feeds in the feed arrays.

('835 patent claim 10)

36. An antenna pattern for a phased reflector array antenna, the antenna pattern comprising a reflector array pattern in product with array-fed reflector patterns, the reflector array pattern generated by a lattice of four or more reflector antennas, the pattern from each of said reflector antennas comprising a predetermined geometric shape, and the array-fed reflector patterns generated by selectively actuable array feeds above the reflector antennas.

(‘835 patent claim 14 in modified form)

37. An antenna pattern according to claim 36, wherein the reflector array pattern is a reflector array pattern corresponding to a lattice of reflector antennas disposed adjacent to one another.

(‘835 patent claim 15)

38. An antenna pattern according to claim 36, wherein at least one of the array-fed reflector patterns is an array feed pattern corresponding to an array feed comprising individual feeds arranged in a lattice.

(‘835 patent claim 16)

39. An antenna pattern according to claim 36, wherein the reflector array pattern is a reflector array pattern corresponding to a substantially hexagonal lattice of reflector antennas.

(‘835 patent claim 17)

40. An antenna pattern according to claim 36, wherein at least one of the array-fed reflector patterns is an array-fed reflector pattern corresponding to a

feed array illuminating a reflector and comprising individual feeds arranged in a hexagonal lattice.

(‘835 patent claim 18)

40

41. A phased reflector array antenna comprising:

a plurality of reflector antennas pointed toward a common direction each comprising a reflector and a feed array, the feed array disposed above the reflector, the reflector comprising a reflector surface having a periphery in the shape of a polygon and including rigid support posts located at corner points of the periphery, and wherein each reflector antenna is disposed adjacent to at least one other reflector antenna and wherein a portion of the periphery is shared with at least one other adjacent reflector antenna in the plurality of reflector antennas to form a phased array antenna using the plurality of reflector antennas as phased array antenna elements to form a communication beam.

(‘835 patent claim 28 in modified form)

41

42. The phased reflector array antenna of claim 41 wherein the individual reflector antennas have a hexagonal periphery.

(‘835 patent claim 30 in modified form)

42

43. The phased reflector array antenna of claim 42, further comprising a hexagonal support web around the hexagonal periphery of the reflector surface.

(‘835 patent claim 33)

~~43~~  
44. The phased reflector array antenna of claim 42 further comprising a hexagonal support web around the hexagonal periphery of the feed support plane surface.

(‘835 patent claim 34)

~~44~~  
45. The phased reflector array antenna of claim 41, wherein the reflector surface is an elastic RF material reflector surface. --

(‘835 patent claim 35)

---